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EXPEDITION OF THE CALIFORNIA ACADEMY
OF SCIENCES TO THE GULF OF
CALIFORNIA IN 1921²

CHRYSIDIDÆ FROM LOWER CALIFORNIA

BY

LELAND H. TAYLOR

Department of Zoology, West Virginia University

Herein are listed or described the species of Chrysididæ contained in the lot of 14 specimens collected by the Expedition of the California Academy of Sciences to the Gulf of California in 1921. The family must be far better represented in this locality than this small collection would indicate, for the Pacific coast is rich in species. It is perhaps unwise to draw conclusions from the distributional data until more intensive collecting can be done, but the indications are that the Chrysidid fauna of this region is much the same as that farther north on the coast.

All the material representing the species listed here and including the types of three new species, was unfortunately destroyed in the mail while in transit to the California Academy of Sciences. The type of one of these species was unique and the description therefore cannot be published, but for the other two species new types have been selected and the descriptions modified accordingly.

¹ No. 32 of the Gulf Expedition papers.

² A map showing all the islands, etc., visited by the Expedition will be found in Vol. XII, No. 6, of these Proceedings, copies of which can be supplied at 50 cents each.

1. *Notozus*, spp.

Two specimens, collected by E. P. Van Duzee, June 3, 5, 1921, at La Paz, Lower California.

In the absence of recent critical study of the genus *Notozus* in North America, it is impossible to ascribe names to the two specimens of this genus, representing apparently two species, which are before me. I am unable to identify them by means of Aaron's work (Trans. Amer. Ent. Soc., vol. 12, 1885, pp. 209-248) and do not care to describe them as new until this genus can be studied in its entirety.

2. *Parnopes concinna* Viereck

One specimen, collected by E. P. Van Duzee, June 4, 1921, at La Paz, Lower California.

3. *Parnopes westcotti* Melander & Brues

Three specimens, collected by E. P. Van Duzee, June 29, 1921, at Porto Refugio, Angel de la Guarda Island, Lower California; and May 29, 1921, at Loreto, Lower California.

4. *Chrysis (Holo-chrysis)* sp.³

One specimen, the type of a proposed new species, closely related to *Chrysis pacifica* Say, collected by E. P. Van Duzee, May 14, 1921, at Mulegé, Lower California. This specimen, being lost, obviously cannot be described. It is one of a rather numerous group all of which are commonly named *pacifica* in collections.

5. *Chrysis (Trichrysis) mucronata* Brullé

Two specimens, collected by E. P. Van Duzee, June 18, 1921, at Coyote Bay, Concepcion Bay, Lower California, and

³In this and in the several species following, the subgeneric terminology of Lichtenstein (Petites Nouvelles Entomologiques, vol. II, 1876, p. 27) is employed, though there seems to be good ground for the abandonment of the commonly accepted subgenera, *Holo-chrysis*, *Gono-chrysis*, etc. At a later date I hope to be able to present adequate reasons for this belief.

June 17, 1921, at Guadalupe Point, Concepcion Bay, Lower California.

This species has been recorded from California, Mexico, Brazil and Venezuela. I have examined a number of specimens from San José del Cabo, Lower California, collected by W. J. Fox and deposited in the collection of the American Entomological Society at Philadelphia. Aaron (loc. cit.) treats this species as a mere variant of *parvula* Fab., but the characters seem to be sufficiently distinct to separate them. The two species are very close, however.

6. *Chrysis* (*Tetrachrysis* ?) *tenuicornis* Taylor, new species
(Figures 2, 3, 4, 5)

This species, unrelated to any species of the genus that I have seen from any part of the world, and apparently unlike any yet described, is most remarkable by reason of its slender form, its long, straight mandibles, its unusually slender antennæ, the shape of its head, and, in particular, on account of the peculiar form of its abdominal tergites, the first of which is greatly shortened and the second greatly lengthened along the median line. The lost specimen from which I originally described this interesting species possessed six distinct apical teeth, two of which have become obsolete in the specimen which I now substitute and describe. The species is far removed from any sexdentate form and, indeed, is unlike any with four apical teeth that I know. Following previous authors' custom with such species, I am arbitrarily placing it under *Tetrachrysis*. This is but one of a number of species of *Chrysis* whose variations demonstrate the necessity of a less artificial classification of the genus.

Female. Length, 7.5 mm. Head: As seen from before, subquadrate, somewhat broader than high; as seen from above, broader than pronotum and nearly twice as long. Mandibles long, scarcely curved, with a small, blunt tooth subapically. Clypeus subequal in length to the vertical diameter of the antennal insertion, with an obtusely angulate, blunt projection at middle of anterior margin upon which is a deep transverse fossa, and with a strong longitudinal elevation which persists between the antennal insertions. Face broad below, narrow above, somewhat excavated medially; on both sides of the mid-portion transversely rugose; upper part and sides coarsely punctate. Facial carina straight, bent downward at both ends. Vertex subconvex; ocelli not hooded; ocellular distance

subequal to postocellar. Genæ broad; postorbital carina strong, doubly flexed, approaching very near the lower posterior orbit. Malar spaces fully twice the length of the second antennal article. Relative lengths of antennal articles,—2/10, 3/30, 4/15, 5/11.1.

Thorax: Pronotum extremely short, subperpendicular before, the dorsal portion scarcely longer than the metanotum; sides bisinuate, strongly converging before, when seen from above; median portion with a shallow, obsolescent, depressed area; lateral lobes with an elongate depression at the lower anterior end and a less distinct depressed area above. Scutum and scutellum convex. Metanotum convex, particularly posteriorly, a foveolate depression along its anterior margin. U-shaped groove of propodeum shallow and narrow; postero-lateral angles of propodeum small, acute, very divergent, their posterior surfaces broadly sublinear. Median longitudinal groove⁴ of mesopleuron obsolete or nearly so; transverse groove⁵ narrow and clear-cut, smoothest anteriorly, foveolate behind. Carinæ of lower mesopleuron subobsolete.

Abdomen depressed, tapering strongly apically. First segment subperpendicular and somewhat hollowed out before, the anterior surface bearing three shallow, smooth, divergent furrows, joined basally; posterior margin arched strongly forward so that it almost meets the summit of the anterior face of the segment—the first segment thus very short, when viewed from above. Second segment depressed, somewhat flattened longitudinally, its length along the median line unusually great—twice that of the lateral margin; posterior margin thickened, but its edge not hollowed out nor sharp; postero-lateral corners obtusely angled. Third segment much narrowed apically, roughly triangular in outline, flattened longitudinally and rather strongly depressed transversely, swelling before the groove at the sides but not medially. Groove shallow and narrow, obsolete medially and extending (though only faintly) to the base of the segment; pits small, regular, circular, the two medial ones out of alignment with and somewhat in front of the others. Four distinct, acute apical teeth, the two median ones long with an acute notch between them which is much deeper than the length of the teeth; the lateral teeth very small and sharply acute, pointing directly backward. Lateral emarginations between teeth somewhat bisarcuate, long and shallow, giving the appearance of a vestigial tooth and two shallow emarginations. Lateral margin of segment nearly straight.

Legs: Tarsal segments slender, scarcely dilated. Anterior femora barely grooved, smooth beneath. Tibiæ very long and slender.

Wings: Radial cell elongate, triangular; apex closed. Radial nervure rather sharply, but obtusely, angulate at about its middle.

Punctuation: Very regular and uniform, nearly all the punctures being of somewhat less than one-half the diameter of an ocellus, considerably

⁴ The median longitudinal groove of the mesopleuron is the foveolate impression which in most species runs from the wing base diagonally to the sternum.

⁵ The transverse groove of the mesopleuron is the foveolate impression which crosses the median longitudinal groove (see preceding footnote).

closer on the head and thorax than on the abdomen; shallow and somewhat confluent on third segment; interstices practically impunctate.

Color: Green, with strong bluish purple reflections. Venter immaculate. Wings slightly infuscated, darkest at the anterior edge of the radial cell.

Pubescence: Moderately long and sparse; erect on head and thorax, somewhat less so on abdomen.

Male. Unknown.

Type: Female, No. 1573, Mus. Calif. Acad. Sci., collected by E. C. Van Dyke, June 23, 1922, at Steen Mountains, Harney Co., Oregon.

The only additional specimen which I have seen, from which I originally described the species, was collected by E. P. Van Duzee, May 14, 1921, at Mulegé, Lower California. This differed markedly only in the possession of six, instead of four, distinct apical teeth, a difference which I believe could well occur in almost any species. Further collections from the two localities mentioned and also from intervening territory are highly desirable and essential to a better understanding of this strange species.

7. *Chrysis (Hexachrysis) fabricii* Mocsáry
(*serdentata* Fab., not Christ)

Two specimens, collected by E. P. Van Duzee, April 23, 1921, at Fresh Water Bay, Tiburon Island, Sonora, and June 14, 1921, at Escondido Bay, Lower California.

This species has an unusually wide distribution. I have studied specimens from New Jersey, Georgia, Washington and Arizona, as well as from several interlying states. It has been reported by authors from South America (French Guiana, Surinam, Brazil).

8. *Chrysis (Hexachrysis) serrata* Taylor, new species

This species is very closely related to *clara* Cresson, to which it would be referred by Aaron's key (loc. cit.). I have compared the type of *clara* with it, however, and find it clearly distinct. It differs from Cresson's species in the beveled margins between the apical teeth, which in *clara* are thickened and hollowed out (fig. 1).

Female: Length, 8.5-10 mm. Head: Subelliptical, considerably broader than high, as seen from before; a little longer and broader than pronotum, as seen from above. Mandibles with a short, blunt, subobsolete tooth before the apex. Clypeus narrowly margined and deeply arcuato-emarginate before, a little shorter than the vertical diameter of the antennal insertion; its disc gibbous. Basin of face rather deeply excavated, finely transversely punctato-striate medially, with a median impressed line, the extreme sides with slightly larger, shallow, irregular punctures. Facial carina moderately protuberant, but not strong, its ends flexed downward. Ocelli distinctly hooded; ocellular distance subequal to postocellar. Malar spaces moderately narrow, less than one-half as long as the second antennal article. Relative lengths of antennal articles 2/10, 3/13.6, 4/10.6, 5/8.3. Postorbital carina strong, reaching nearly as high as the summit of the eye, strongly arched and approaching very close to the lower posterior orbit.

Thorax: Pronotum about four-fifths as long as scutellum, very abruptly declivous before; median furrow narrow and shallow, obsolete behind; lateral lobes with a deep, subrhomboidal impression. Parapsidal lines of scutum somewhat broadened posteriorly, not deep or strong, somewhat confluent with the adjacent punctures. Disc of scutellum much flattened. Metanotum short, convex, with a small, impressed area in the anterior middle. U-shaped groove of propodeum broad and shallow, its lateral branches quite densely, but not strongly rugose; postero-lateral angles of propodeum sharp, acute, divergent, their posterior surfaces narrowly triangular, with a gentle obtusely angulate projection downward. Median longitudinal groove of mesopleuron narrow and shallow; transverse groove very deep, broad on disc, with sharp transverse rugæ; carinae of lower mesopleuron moderately strong, subserrate, bowed out, forming together a very attenuated V.

Abdomen: First segment short, abruptly declivous before, the declivity bearing a moderately deep, rounded, median groove, which extends back of it; postero-lateral corners rectangulate, subspinoid. Second segment with a faint median carina, subconvex; posterior margin thickened, with the upper edge of the thickening sharp, projecting; postero-lateral corners subobtusely and subspinoid. Third segment short, subsemicircular in outline, a little transversely depressed across the middle and somewhat swollen before the groove. Groove narrow and deep, not very distinctly divided by the median carina, ending at about one-third of the distance from base to apex. Pits deep, close, circular, the separations between them very fine. Six acute apical teeth, slightly flexed downward, the two median long and narrow, the two lateral about half the length of these and much less acute, the medio-lateral about half way between the median and the lateral in length and acuteness; emarginations between teeth of subequal widths, the median deep, arcuato-angulate, the medio-lateral arcuate, more shallow, a little deeper than a semicircle, the lateral obliquely arcuate, still more shallow; emarginations beveled below, not hollowed out

(fig. 1). Lateral margin rather gently arched inward along its entire length.

Legs: Femora with shallow grooves below; tarsal segments dilated apically.

Wings: Radial cell narrow; apex open; radial nervure very obtusely angled before its middle, the portion beyond the angulation straight.

Punctuation: Vertex with rather close punctures of about one-third to one-half the diameter of an ocellus. Thorax with punctures of about one-half the diameter of an ocellus intermixed with a few very small punctures, particularly on the scutum; the interstices with sparse, fine punctules. Basal, median, and apical parts of first abdominal segment with rather large, deep punctures, the interstices rather densely punctulate; a patch of small, close punctures on both sides of the disc. Second and third abdominal segments with regular punctures, smaller than those on thorax, becoming somewhat smaller at the apices of both segments; interstices nearly impunctate.

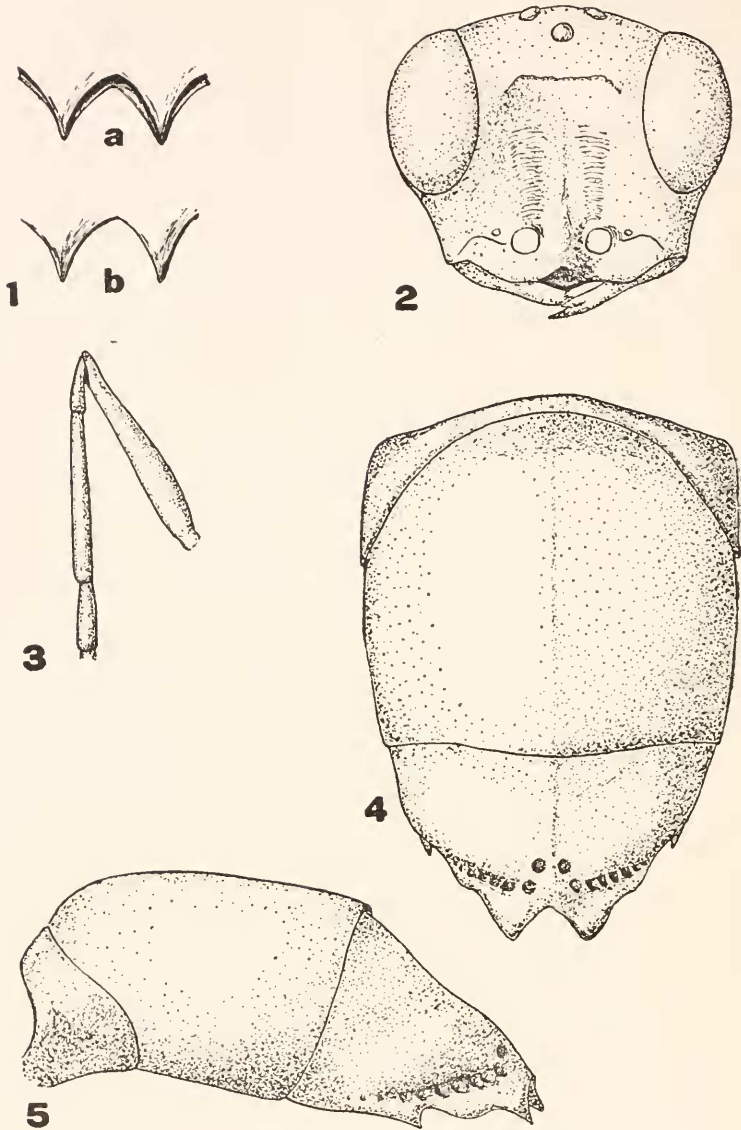
Color: Green, with brassy and limited, but brilliant, bluish-purple reflections. Venter green with brassy reflections, the basal part of the second segment black. Wings hyaline; radial cell somewhat infuscated.

Pubescence: Moderately short and sparse, silvery-white, a little longer on vertex, erect on thorax, subappressed on abdomen; moderately dense and subappressed on sides of face.

Male: Length, 8-10 mm. Differs only slightly from the female, chiefly in the third abdominal segment, which is shorter, often less depressed transversely, and has shorter apical teeth. Posterior ocelli less distinctly hooded. Pubescence of dorsum a little longer.

Type: Female, in Museum of Comparative Zoology, Harvard University, collected at Pressy's, Wenass Valley, Washington.

In addition, I have seen one female and five males of this species. The other female, from which I originally described the species, was collected by E. P. Van Duzee, June 3, 1921, at La Paz, Lower California. Allotype from Umatilla, Oregon, in Museum of Comparative Zoology. Other specimens; Mokelumne Hill, California (F. E. Blaisdell); Tallac (6000 ft.), El Dorado Co., California (W. M. Giffard); Washington (state).



EXPLANATION OF TEXT FIGURES

- Fig. 1. Emargination between median apical teeth of (a) *Chrysis clara* Cresson and (b) *Chrysis serrata*, new species.
 Fig. 2. *Chrysis tenuicornis*, new species. Head from before.
 Fig. 3. Same. First four antennal articles.
 Fig. 4. Same. Abdomen from above.
 Fig. 5. Same. Abdomen from side.